25. (NEW) A method of driving plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

driving the plasma display panel by decreasing a drive frequency of sustain discharges as a display load factor increases, wherein when the display load factor increases, an emission intensity of green is decreased or an emission intensity of blue is increased compared with a case when the display load factor is lower.

26. (NEW) A method of driving plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

driving the plasma display panel by decreasing a drive frequency of sustain discharges as a display load factor increases, wherein when the display load factor decreases, an emission intensity of blue is decreased or an emission intensity of green is increased compared with a case when the display load factor is higher.

REMARKS

STATUS OF CLAIMS

Claims 1-10 are pending and stand rejected.

By this Amendment, claims 1-10 are amended and new claims 11-26 are added. Therefore, claims 1-26 are now presented for consideration.

DRAWING ACKNOWLEGMENT

No indication of the status of the drawings is provided in item 10 of the Office Action Summary. Please acknowledge the acceptability of the Drawings (Figs. 1, 2A-2B, and 3-10) in the next Office Action.

AMENDMENTS TO CLAIMS 1-10

Claims 1-10 are amended to only improve antecedent support. The amendments to claims 1-10 do not materially affect the scope of the claims within the meaning of Festo Corp. v.

Shoketsu Kinzoku Koygo Kabushiki Co., 56 USPQ2d 1865 (Fed. Cir. 2000).

REJECTION OF CLAIMS 1-6 UNDER 35 U.S.C. §102(e)

In the Office Action at page 2, item 2, claims 1-6 are rejected under 35 U.S.C. §102(e) as being anticipated by Kasahara et al. (U.S. Patent No. 6,331, 843).

CLAIM 1

The Examiner asserted, in the Office Action at page 3, lines 2-6 that Kasahara et al. teaches a plasma display panel in which

> "the drive frequency can be increased or decreased based on a brightness detecting means as independently corrected for each of [red] R, [green] G, [blue] B colors, said brightness detecting means having a direct correspondence to load factor, the adjustments of the R, G, B colors intensity each being independently increased or decreased according to load factor." (Bracketed inserts are added.)

Applicants respectfully disagree with the Examiner as Kasahara et al. does not disclose or suggest, as the Examiner asserted, that "the adjustment of the R, G, B colors intensity each being independently increased or decreased according to load factor." The Kasahara et al. display apparatus merely adjusts "a subfield number in accordance with brightness of an image" (see Kasahara et al. at column 2, lines 47-51 and column 3, lines 51-53) but does not independently adjust R, G, B colors. Reconsideration is respectfully requested based on the following remarks.

In accordance with the invention as recited in claim 1, "[the] drive unit makes a correction to change an emission intensity of a fluorescent substance of a predetermined color, so that a ratio of emission intensity of said fluorescent substance of each color during a white display is roughly the same when said display load factor is low and high, depending on a change of the display load factor."

Thus, the invention as recited in claim 1, changes the emission intensity of a fluorescent substance of a predetermined color depending on a change of the display load factor and, more particularly, makes a correction to change the emission intensity of the fluorescent substance so that a ratio of the emission intensity of the fluorescent substance of each color is roughly the same.

Kasahara et al. discloses that "[b]y increasing the subfield number, it is possible to eliminate pseudo-contour noise ... and conversely, by decreasing the subfield number, although there is the likelihood that pseudo-contour noise will occur, it is possible to produce a clearer image." (See Kasahara et al. at column 2, lines 56-60.)

An example of pseudo-contour noise is provided in Kasahara et al. at column 2, line 61 to column 3, line 24. In particular, Kasahara et al. discloses that:

> "when an image changes from FIG. 5 to FIG. 3, at the point in time when it changes to FIG. 3, a viewer is cognizant of region A1, which takes the form of a logical sum (OR) of A1 region data (10000000) and B1 region data (01111111), that is (11111111). That is, the most significant bit is forcibly changed from "0" to "1," and in accordance with this, the A1 region is not displayed at the original 128 level of brightness, but rather, is displayed at a roughly 2-fold brightness level of 255. Thereupon, an apparent bright borderline appears in region A1. If an apparent change from "0" to "1" is applied to an upper bit like this, an apparent bright borderline appears." (See Kasahara et al. at column 3, lines 13-24.)

This means that the pseudo-contour noise is not caused by anything related to an emission intensity of a fluorescent substance of a predetermined color but is caused by, for example, a brightness change in the A1 region of Kasahara et al.

Further, in the first embodiment, as shown in Kasahara et al. at FIGS. 11 and 12, a brightness detector includes a peak level detector 26 and an average level detector 28 to detect a peak level Lpk and an average level Lav, respectively (see Kasahara et al. at FIG. 11), and "[a]n image characteristics determining device 30 receives the average level Lav and peak level Lpk, and decides [based on the table shown in FIG. 12] 4 parameters by combining the average level with the peak level: [the four parameters being] N-times mode value N; multiplication factor A of the multiplier 12; number of subfields Z; and number of gradation display points K." (See Kasahara et al. at column 21, lines 14-19.) Further, the subfield unit pulse number setting device 34 sets the corresponding sub-field number. However, in the Kasahara et al. display apparatus, the emission intensity of a fluorescent substance of a predetermined color is not changed depending on a change of the display load factor and, more particularly, in the Kasahara et al. display apparatus a correction is not made to change the emission intensity of the fluorescent substance of the predetermined color depending on the change of the display load factor so that a ratio of the emission intensity of the fluorescent substance of each color is roughly the same. This is because Kasahara et al. merely adjusts the number of sub-field number Z depending on the peak level Lpk and the average level Lav.

Thus, Kasahara et al. does not disclose or suggest changing the emission intensity of a fluorescent substance of a predetermined color (i.e., independent changes to a predetermined color) depending on a change of the display load factor and, more particularly, Kasahara et al. does not disclose or suggest making corrections to change the emission intensity of the fluorescent substance of the predetermined color (i.e., independent corrections to change a predetermined color) so that a ratio of the emission intensity of the fluorescent substance of each color is roughly the same.

Accordingly, claim 1 patentably distinguishes over the cited art and should be allowable. Reconsideration of the rejection is respectfully requested.

CLAIMS 2-6

Claim 2 is directed to a plasma display panel and recites "a drive unit which drives the panel by decreasing a drive frequency of sustain discharges as a display load factor increases, wherein when the display load factor increases, said drive unit makes a correction so that an emission intensity of green is decreased or an emission intensity of blue is increased compared with a case when the display load factor is lower." Thus, in the invention as recited in claim 2, the emission intensity of green is decreased or the emission intensity of blue is increased when the display load factor increases.

As above-mentioned with respect to claim 1, Kasahara et al. does not disclose or suggest independent changes to a predetermined color.

Accordingly, claim 2 patentably distinguishes over the cited art and should be allowable.

Claim 3, which is directed to a plasma display panel, recites "a drive unit which drives the panel by decreasing a drive frequency of sustain discharges as a display load factor increases, wherein when the display load factor decreases, said drive unit makes a correction so that an emission intensity of green is increased, or an emission intensity of blue is decreased compared with a case when the display load factor is higher" and should also be allowable for similar reasons as noted above for claim 2.

Claims 4-6, which depend directly from claim 3, should be allowable for at least the same reasons as claim 3, as well as for the additional recitations therein. Reconsideration of the rejections is respectfully requested.

REJECTION OF CLAIMS 7-10 UNDER 35 U.S.C. §103(a)

In the Office Action at page 5, item 9, claims 7-10 are rejected under 35 U.S.C. §103(a) as unpatentable over Kasahara et al.

The rejection of claims 7-10 is not clear as the respective recited features, "wherein a chromaticity coordinate value during a white display is roughly constant regardless of a display load which depends on a luminance and/or a display area of a display image" (see claim 7), "wherein a color temperature value during a white display is roughly constant regardless of a display load which depends on a luminance and/or a display area of a display image" (see claim 8), "wherein a deviation from a color temperature curve denoted by a black body radiation curve during a white display is roughly constant regardless of a display load which depends on a luminance and/or a display area of a display image" (see claim 9), and "wherein a chromaticity coordinate value during a white display is within ±0.005uv of a deviation region from a color temperature curve denoted by a black body radiation curve regardless of a display load which depends on a luminance and/or a display area of a display image" (see claim 10) are alleged to be well within the scope of the invention for reasons which seem to be related to the conclusion that "it [Kasahara et al.] is intended to produce this result by independently adjusting the R, G, B, color levels based on the monitored load factor, for the purpose of achieving consistent color without pseudo contour noise and to achieve a clearer image without any distortion" (see the Office Action at page 6, lines 5-8). (Bracketed inserts are added.)

The following remarks are based on the above-mentioned interpretation of the rejections of claims 7-10.

The Examiner is respectfully requested to reconsider the rejection of claims 7-10 as the rejection of claims 7-10 appears based on the same incorrect conclusion used to reject claim 1 that Kasahara et al. discloses or suggests independently adjusting the R, G, B, color levels.

This is because Kasahara et al. merely adjusts the number of sub-field number Z depending on the peak level Lpk and the average level Lav. Therefore, the Kasahara et al. display apparatus cannot independently adjust the R, G, B, color levels based on the monitored load factor. Without such adjustment of colors individually, it is not possible in the Kasahara et al. display apparatus for any of "a chromaticity coordinate value during a white display...", "a color temperature value during a white display..." and "a color temperature curve denoted by a

black body radiation curve during a white display..." to be "roughly constant regardless of a display load" (as recited in claims 7-9, respectively).

Further, nothing is disclosed in Kasahara with regard to "chromaticity coordinate value" (as recited in claim 7 and 10), "a color temperature value" (as recited in claim 7) or "a deviation from a color temperature curve" (as recited in claim 9). Therefore, it is submitted that these features are not within the scope of the invention as disclosed or suggested by Kasahara et al. and would not have been obvious to one of ordinary skill in the art.

Accordingly, it is submitted that the above-mentioned recitation in claims 7-9 are not disclosed or suggested by the cited art and should be allowable. Claim 10 should be allowable for reasons similar to claim 7. Reconsideration of the rejections is respectfully requested.

CLAIMS 11-26

New claims 11-26 are presented to afford a varying scope of protection. Entry, consideration and allowance is respectfully requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 9/19/02

By: Eric Berkowitz

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please AMEND the following claims:

1. (ONCE AMENDED) A plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

a drive unit which drives the panel [with] by decreasing [the] a drive frequency of [the] sustain discharges as [the] a display load factor increases,

wherein said drive unit makes a correction to change [the] an emission intensity of a fluorescent substance of a predetermined color, so that [the] a ratio of the emission intensity of said fluorescent substance of each color during a white display is roughly the same when said display load factor is low and high, depending on a change of the display load factor.

2. (ONCE AMENDED) A plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

a drive unit which drives the panel [with] by decreasing [the] a drive frequency of [the] sustain discharges as [the] a display load factor increases,

wherein when the display load factor increases, said drive unit makes a correction so that [the] an emission intensity of green is decreased or [the] an emission intensity of blue is increased compared with [the] a case when the display load factor is lower.

3. (ONCE AMENDED) A plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

a drive unit which drives the panel [with] by decreasing [the] a drive frequency of [the] sustain discharges as [the] a display load factor increases,

wherein when the display load factor decreases, said drive unit makes a correction so that [the] an emission intensity of green is increased, or [the] an emission intensity of blue is decreased compared with [the] a case when the display load factor is higher.

4. (TWICE AMENDED) The plasma display panel according to claim 3, wherein said drive unit monitors [the] a power consumption of the panel and corrects said emission intensity of green or blue on [the] a condition that said display load factor increases when said power consumption [changes to] increases, and said display load factor decreases when said power consumption [changes to] decreases.

5. (TWICE AMENDED) The plasma display panel according to claim 3, wherein said drive unit monitors the drive frequency of the sustain discharges of the panel, and corrects said emission intensity of green or blue on [the] a condition that said display load factor increases when said drive frequency [changes to] decreases, and said display load factor decreases when said drive frequency [changes to] increases.

6. (TWICE AMENDED) The plasma display panel according to claim 3, wherein said drive unit monitors a luminance value and/or a display area value of each color to be supplied per predetermined unit time, and corrects said emission intensity of green or blue on [the] a condition that said display load factor increases when [the] an accumulated total of said luminance value and/or display area value per predetermined unit time is higher, and said display load factor decreases when the accumulated total of said luminance value and/or display area value per predetermined unit time is lower.

7. (ONCE AMENDED) A plasma display panel which display colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, wherein a chromaticity coordinate value during a white display is roughly constant regardless of a [the] display load which depends on [the] a luminance and/or a display area of [the] a display image.

8. (ONCE AMENDED) A plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, wherein a color temperature value during a white display is roughly constant regardless of a [the] display load which depends on [the] a luminance and/or a display area of [the] a display image.

9. (ONCE AMENDED) A plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, wherein [the] a deviation from [the] a color temperature curve denoted by [the] a black body radiation curve during a white display is roughly constant regardless of a [the] display load which depends on [the] a luminance and/or a display area of [the] a display image.

10. (ONCE AMENDED) A plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, wherein a chromaticity coordinate value during a white display is within ±0.005uv of [the] a deviation region from [the] a color temperature curve denoted by [the] a black body radiation curve regardless of a [the] display load which depends on [the] a luminance and/or a display area of [the] a display image.

Please ADD new claims 11-26 as follows:

11. (NEW) A plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

a drive unit driving the plasma display panel and changing a drive frequency of sustain discharges according to a display load factor to change an emission intensity of one or more of the plurality of fluorescent substances of predetermined colors, so that a ratio of an emission intensity of each of the different colors during a white display is substantially equal regardless of the display load factor.

12. (NEW) The plasma display panel according to claim 11, wherein the display load factor changes.

13. (NEW) The plasma display panel according to claim 11, wherein when the display load factor increases from a first level to a second level, higher than the first level, by increasing a luminance and/or a display area of a display image, the drive unit decreases an emission intensity of green light from a first intensity to a second intensity less than the first intensity or increases an emission intensity of blue light from a third intensity to a fourth intensity greater than the third intensity.

14. (NEW) The plasma display panel according to claim 11, wherein when the display load factor decreases from a first level to a second level, lower than the first level, by decreasing a luminance and/or a display area of a display image, the drive unit increases an emission intensity of green light from a first intensity to a second intensity greater than the first intensity or decreases an emission intensity of blue light from a third intensity to a fourth intensity less than the third intensity.

15. (NEW) The plasma display panel according to claim 13, wherein said drive unit detects a power consumption of the plasma display panel and adjusts the emission intensity of the green light and/or the emissions intensity of the blue light based on a relationship between display load factor changes and power consumption changes.

16. (NEW) The plasma display panel according to claim 14, wherein said drive unit detects a power consumption of the plasma display panel and adjusts the emission intensity of the green light and/or the emissions intensity of the blue light based on a relationship between display load factor changes and power consumption changes.

17. (NEW) The plasma display panel according to claim 13, wherein said drive unit detects the drive frequency of the sustain discharges of the plasma display panel and adjusts the emission intensity of the green light and/or the emissions intensity of the blue light based on a relationship between display load factor changes and drive frequency changes.

18. (NEW) The plasma display panel according to claim 14, wherein said drive unit detects the drive frequency of the sustain discharges of the plasma display panel and adjusts the emission intensity of the green light and/or the emissions intensity of the blue light based on a relationship between display load factor changes and drive frequency changes.

19. (NEW) The plasma display panel according to claim 13, wherein said drive unit detects a luminance value and/or a display area value of each color to be supplied per predetermined unit time, and adjusts the emission intensity of the green light or the emission

intensity the blue based on a relationship between changes of the display load factors and changes of an accumulated total of an luminance value and/or a display area value per predetermined unit time.

20. (NEW) The plasma display panel according to claim 14, wherein said drive unit detects a luminance value and/or a display area value of each color to be supplied per predetermined unit time, and adjusts the emission intensity of the green light or the emission intensity the blue based on a relationship between changes of the display load factor and changes of an accumulated total of an luminance value and/or a display area value per predetermined unit time.

21. (NEW) A plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

a drive frequency detection unit to detect a drive frequency and adjust output values of a gamma table in a gamma conversion process according to the detected drive frequency so that a ratio of an emission intensity of each of the different colors during a white display is substantially equal regardless of the display load factor.

22 (NEW) A method of driving plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

driving the plasma display panel by changing a drive frequency of sustain discharges according to a change of a display load factor thereby to change an emission intensity of one or more of the plurality of fluorescent substances of predetermined colors, so that a ratio of an emission intensity of each of the different colors during a white display is substantially equal regardless of the display load factor.

23. (NEW) A method of driving plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

detecting a drive frequency; and

adjusting output values of a gamma table in a gamma conversion process according to the detected drive frequency so that a ratio of an emission intensity of each of the different colors during a white display is substantially equal regardless of the display load factor.

24. (NEW) A method of driving plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

driving the plasma display panel by decreasing a drive frequency of sustain discharges as a display load factor increases thereby to change an emission intensity of a fluorescent substance of a predetermined color, so that a ratio of the emission intensity of said fluorescent substance of each color during a white display is roughly the same when said display load factor is low and high, depending on a change of the display load factor.

25. (NEW) A method of driving plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

driving the plasma display panel by decreasing a drive frequency of sustain discharges as a display load factor increases, wherein when the display load factor increases, an emission intensity of green is decreased or an emission intensity of blue is increased compared with a case when the display load factor is lower.

26. (NEW) A method of driving plasma display panel which displays colors by exciting a plurality of fluorescent substances of different colors using ultra-violet rays generated during discharges, comprising:

driving the plasma display panel by decreasing a drive frequency of sustain discharges as a display load factor increases, wherein when the display load factor decreases, an emission intensity of blue is decreased or an emission intensity of green is increased compared with a case when the display load factor is higher.